

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

BULLETIN NO. 19

EXPERIMENT STATION
TUSKEGEE NORMAL AND INDUSTRIAL INSTITUTE
TUSKEGEE INSTITUTE, ALABAMA

Some Possibilities of the Cow Pea in Macon County, Alabama



THRASHING IN THE OLD WAY

By **GEORGE W. CARVER, M. S. Agr.**

1910

The Tuskegee Experiment Station

Board of Regents

Mr. Charles Coleman Thach, President.....	Auburn, Alabama
Hon. R.F.Kolb.....	Montgomery, Alabama
Mr. W. W. Campbell.....	Tuskegee, Alabama
Mr. Charles W. Hare.....	Tuskegee, Alabama
Mr. A. J. Wilborn.....	Tuskegee, Alabama
Mr. Booker T. Washington.....	Tuskegee Institute, Alabama
Mr. Warren Logan.....	Tuskegee Institute, Alabama

Station Staff

G. W. Carver, M. S. Agr.....	Director
O. W. Ferguson.....	In Charge of Canning Factory
George R. Bridgeforth.....	Director of Agricultural Department
R. A. Clark.....	Assistant to Director of Agricultural Department
T. N. Cowen.....	Farm Superintendent
John D. Wray.....	Assistant to Farm Superintendent
Augustus McGriff.....	Assistant to Farm Superintendent
R. S. Pompey.....	Dairy Husbandry
Mathew Wood.....	Assistant in Dairy Husbandry
C. W. Greene.....	Truck Garden
A. A. Turner.....	Dairying
Almancey L. Evans.....	Poultry Raising
R. R. Robinson.....	In Charge of Swine Herd
H. B. Jordan.....	Care and Management of Horses and Mules
M. F. Ballentine.....
.....	Assistant Care and Management of Horses and Mules
T. M. Campbell.....	Demonstrative and Farmers' Institute Work
*R. E. Malone.....	Fruit Growing
L. J. Watkins.....	Road Building and Construction Work
George B. Thornton.....	Stenographer
J. H. Bias.....	Veterinarian
W. A. Tate..	United States Demonstration Work and Jesup Wagon

*Part of Term



The Tuskegee Agricultural Experiment Station

BULLETIN NO. 19 : : : : : NOVEMBER, 1910

Some Possibilities of the Cow Pea in Macon County, Alabama

G. W. CARVER, M. S. AGR., Director



A Fine Field of Peas

The cow pea is rightfully looked upon by many as the poor man's bank or mortgage-lifter. I think I am safe in the assertion that there is no crop grown in the South which possesses so many good qualities and is so easily grown as the cow pea.

It is a matter of much regret that every colored farmer in Macon County does not plant at least three acres in peas.

In 1902 the entire state planted only 91.126 acres in peas, and produced the surprisingly small amount of 665,288 bushels—just a trifle above 7 bushels per acre. The yield should not have fallen below 1,822,520 bushels.

It is interesting to note that, for the last 15 years, cow peas in this country have sold, in the spring, at a high price. The prices

this year (June 11th) ranged from \$2.50 to \$3.00 per bushel, and they were exceedingly difficult to get at these prices, because the farmers did not have them. With a little attention the pea can be made to yield far better returns, all things considered, than cotton. The colored farmers alone in Macon County ought to produce with the greatest of ease, 125,000 bushels of peas, and many thousand tons of valuable hay.

History

For nearly one hundred years the cow pea has been the chief leguminous (pod-bearing) crop throughout the entire group of Southern States. About fifty varieties have been cultivated to a greater or lesser extent in the United States, and every year its value is becoming better known and more highly appreciated, as is evidenced by the increased acreage planted wherever it can be grown.

Origin

Of the large number of varieties cultivated in this country, it is thought that the most of them are of American origin, and they are technically classified as "*Vigna Unguiculata*." It is also believed that many of the American varieties originated by hybridization or by mutation.

The cow pea is closely related to the Catjang family (*Vigna Catjang*); also to the Asparagus bean (*Vigna Sesquipedalis*). Their cultivation is very ancient, especially in Southern Asia and Africa.

There are a great many varieties in those countries, which are being brought over to this country, and from which we may expect some new and valuable crosses. Mr. George W. Oliver has made many hybrids in which the valuable qualities of the two types are combined, and will give us doubtless a more superior pea than either parent.

The cow pea is also found growing wild in India. The foreign types are supposed to have been brought to this country from England in 1734 by Oglethorpe and distributed to the Georgia colonies.

Varieties

Of the many varieties upon the market, our Station has found these to be the best for this locality:

For Early Planting:

The "Extra Early Black Eye," "New Era," and the "Lady" pea have proven the most desirable.

For Mid-Summer:

Plant the "Iron," "Speckled," "Black," "Clay," "Red Ripper," and "White Crowder."

For Late Planting:

There is nothing better than the "Unknown." This variety makes a tremendous growth of vines and also a good yield of peas.

Climate and Soil

In these two particulars Macon County is especially fortunate. While the pea will adjust itself to almost any kind of soil, and will produce larger returns in the way of a crop on thin, sandy soils than any other of our common garden or field crops, it delights in a light, well-drained, porous, sandy soil. Our own climate is quite ideal—the hot summer sun and the mild winters make the pea almost indigenous. Very often peas lay in the ground all winter and come up in the spring.

Selection of Seed

As a rule, there is practically no attention given to the proper kind of seed to select for planting, and many do not even attempt to keep the different varieties separate. This is a great mistake. It is just as important to select the proper kind of pea seed for planting as it is to select that of any other farm crop. The following points should be observed:

1. Screen, winnow, float, or hand-pick so as to get only the largest, soundest, and plumpest seed. It is true that many of the small, light, inferior-looking peas will grow and often produce considerable vine, but the yield of peas will be deficient both in quantity and quality.

- (2) Select peas that are as little eaten by the weevil as possible, and do not be deceived by the old antiquated idea that bug-eaten peas grow just as well as thoroughly sound ones. Two or three small holes do not seem to materially injure them for planting, but anything above that should not be used if a full crop is expected.

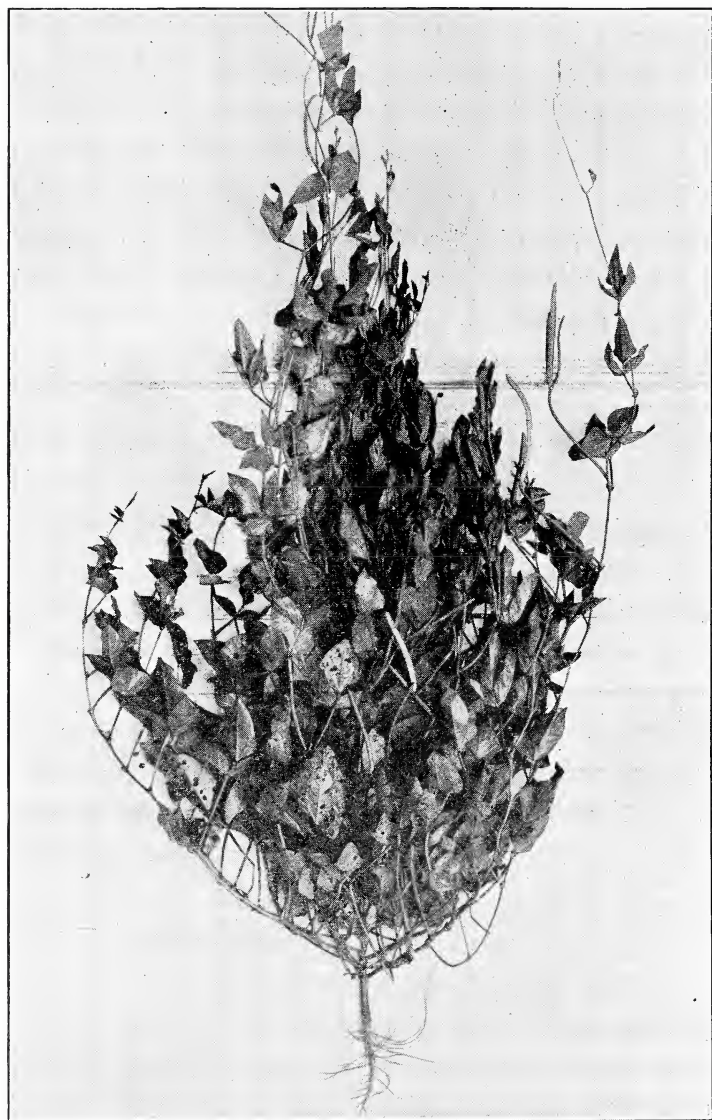
The two large fleshy seed leaves contain the stored-up food for the tiny plantlet until it is large enough and strong enough to get its food from the soil; hence, if these seed leaves have been injured, its food supply has been cut off and the plant weakened in proportion to the extent of the injury to the seed leaves.

- (3) Do not plant a conglomerated mixture, but separate the varieties, even if you have to hand-pick them. No two varieties are exactly alike in growth and other characteristics, hence, if sown together, the strongest grower and feeder will more or less overcome the weakest, which means a reduction in the crop in the end, besides the loss of the particular varieties which enter into the admixture.

- (4) Mixed peas always sell for less than pure varieties, and are never so good for table use, as they do not cook evenly.

Preparation of the Land

The cow pea likes an especially deep and well-prepared seed bed. Prepare exactly the same as for corn or cotton by plowing from 8 to 9 inches deep. Harrow thoroughly, cross-plow, and re-harrow if necessary to put the land in proper condition. The pea is a voracious feeder, and the roots travel five and six feet, and even



A Well Grown Pea Vine

greater distances (under favorable circumstances) in search of food. It must be borne in mind that if the land has been skimmed in the matter of plowing for some years to a depth of three or four inches,

do not plow but two inches deeper the first time, unless you have plenty of manure to broadcast and turn under. The next time the land is prepared for a crop, go the other two or three inches as the case may be.

Planting

In this there are several methods in common use, all of which, under certain favorable conditions, do well; but experience seems to emphasize the following as points to be observed:

Method (a) prepare the ground; puts the seed in with a drill, or sows them by hand, putting from 1-1-2 to 2 bushels per acre, and covers with a harrow. This is all right providing the ground is reasonably rich and well-prepared; the peas will get ahead of the weeds and grass. Do not sow peas in very poor land that has a tendency to bake after the first hard rain.

Method (b) plants in rows the same as for corn or cotton, and cultivates almost entirely throughout the growing season. This method will produce a good crop of peas, but at too great an expense of labor.

Method (c) plants in rows thus: Lay off two rows the usual width, say three feet; then another from 12 to 16 inches from it. This will allow the cultivator to run between the rows and keep them clean until the plants get a start. By removing a tooth from a cultivator on the order of the Diverse, both the wide and narrow row may be cultivated at the same time. One or two workings is all that is necessary, as the peas will soon cover the ground and appear as sowed.

This is pre-eminently the method to follow in planting poor land, as it keeps the ground loose, the weeds down, and gives the peas a chance to start to growing such as they would not have if sown.

Method (d) plants peas in corn, about the last plowing. They are sown, drilled, or chopped in with a hoe as the planter wishes. Often an excellent crop of peas can be made in this way, and at the same time the land is greatly improved.

Sowing with sorghum mill it is quite common, and on rich soil, the results are excellent, but exceedingly bad and disappointing on poor soil.

Fertilizing

The cow pea belongs to a section of plants known as "legumes," and they characterize themselves from all other plants by bearing pods, in which the seed are contained. There are two chief reasons why these legumes hold first place with every progressive farmer. First, they have, as no other class of plants have, the power under the proper conditions, to extract nitrogen from the air and impart or give it to the soil. Repeated experiments prove that an acre of well-grown cow peas will, if the total crop is returned, impart from



Peas and Corn

\$29.00 to \$30.00 worth of fertility to the soil. The pea, like all other plants of its class, has the power to extract and use the free nitrogen from the air by certain germs known as bacteria (which belong to the lowest order of plant life.) These bacteria collect in large num-

bers and form little nodules (swellings) on the roots. The bacteria collect the nitrogen from the air and deposit it in these nodules, where it is worked over and made ready for the use of the plant. Hence, peas do not require heavy applications of fertilizers containing nitrogen, but they are heavy feeders on potash and phosphoric acid.

On exceedingly poor soils it is wise to put a little nitrogen, say 30 or 40 lbs. of nitrate of soda per acre, or its equivalent in any other fertilizer containing nitrogen. Where the soil is reasonably rich, as indicated by a heavy growth of vines, no nitrogen is needed.

Inoculation

Inoculation is the process of supplying the soil with the particular germs (bacteria) that form the nodules. There are two ways in common use that have proven quite satisfactory: First, by getting some soil from a field where the crop was fine and the roots unusually thick with nodules. The soil is loaded into a wagon and scattered out upon the land much the same as for coarse fertilizers. The peas are then planted in the usual manner. This method is universally satisfactory. Second, by the use of commercially prepared preparations known as pure cultures. A full set of directions accompany each bottle or package of material, so that all that is necessary is to carry them out. The soils of Macon County are abundantly supplied with these germs, so that inoculation is not necessary.

The second reason for their great popularity is that the seed are very rich in nitrogenous (muscle-building) material; so therefore, there is no foodstuff to take its place—none that will answer just as well from every point of view for feeding all kinds of animals.

Cultivation

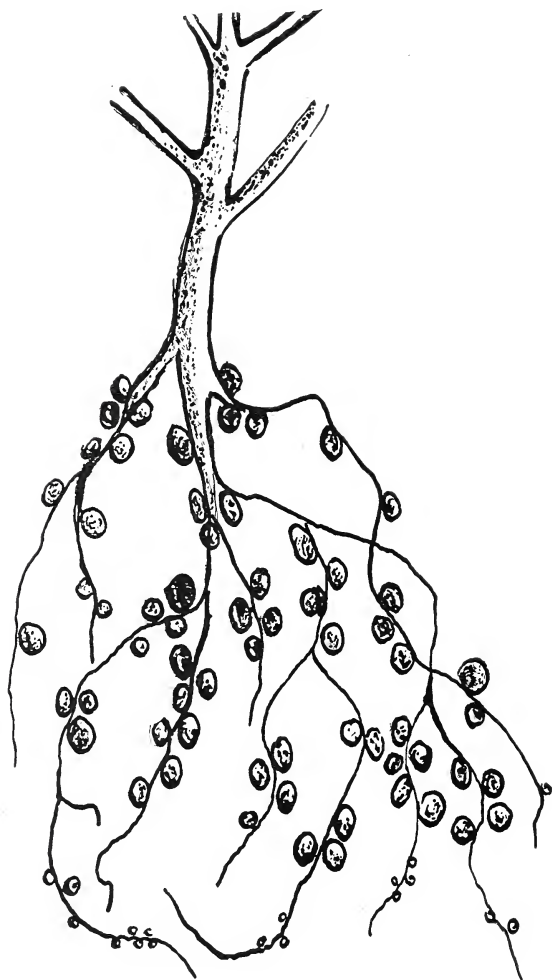
When sown broadcast they require no cultivation. When in drills, as heretofore referred to, they are greatly improved by two or three shallow workings, sufficient to keep the weeds down and the soil mellow. They will soon cover the ground.

Harvesting

As a hay crop, the cow pea should be to the South what the red clover is to the North.

The stems are quite succulent, and care must be taken or the leaves will drop off before the stems are sufficiently dry to store away.

When to Cut.—The best time to cut is when the first pods begin to turn yellow. There are a great variety of ways to save the hay, many of which are good, but I like this one the best. Never cut a large quantity down when the weather is threatening rain, as the curing process cannot be rushed as in other hays.

**Carver**

A root full of nitrogen bearing nodules

Begin cutting as early in the morning as the dew is off. (Never cut wet vines for hay, as they are almost sure to spoil.) As soon as the top vines are thoroughly wilted, run over them with a hay-tedder or something that will turn them. A pitch fork is excellent, but slower and more laborious. If the weather is favorable the hay may be put into small cocks the next afternoon, leaving it thus three or four days before hauling it to the barn. A good plan is to take some of the largest stems between the thumbs and

fingers, giving them a severe twist; if any juice appears, it is too wet to stack or bale.

Those who have had much experience with saving pea-vine hay know that there are two danger points—under-drying, which causes moulding and rotting when stored; over-drying, which causes all the leaves to drop off in handling so that there is nothing but a pile of stems when the storage place is reached. In either case the feeding value is greatly impaired or wholly destroyed.

Pea-vine hay goes through a sweating process, and therefore should be put into small stacks, tipping the stacks with hay, straw, or some such material sufficiently deep to turn the water. Allow it to remain in these stacks two or three weeks.

As a Food for Stock

The following table I am sure will interest all feeders of live stock, and especially in the South where the pea hay can be so abundantly and easily made:

FLESH, FAT AND MILK FORMERS IN 100 POUNDS OF AIR-DRY SUBSTANCE

TOTAL NUTRIENTS	PROTEIN	FATS, ETHER EXTRACT	NITROGEN, FREE EXTRACT	CRUDE FIBRE	DIGESTIBLE NUTRIENTS			
					PROTEIN	FATS	NITROGEN, FREE EX- TRACT	
RED CLOVER HAY	12 50	2 43	40 43	26 81	6 17	1 03	23 28	12 73
COW PEA VINE HAY	14 43	2 49	41 42	21 54	9 31	1 24	29 14	9 24
DIFFERENCE IN FA- VOR OF THE COW PEA	1 93	06	79		3 14	21	6 06	

I have been much interested in the exploitation of alfalfa meal, corn-falfa, Arab Horse Feed, Renofalfa, and a number of others, the majority of which consist of finely ground-up leaves and stems of alfalfa, with a certain quantity of crushed grain (oats, corn, rye, barley, etc.) mixed in. Where it is properly done it makes not only a highly nutritious, palatable, and an easily digested food, but one convenient to handle and in many other ways desirable.

Alfalfa like the pea vine sheds its leaves easily when dry, so it is reduced to bare stems very often before reaching the consumer, and especially if it is handled much; hence, the above measures are resorted to in order to get its full value.

I have often thought of the almost unlimited possibilities Macon County has in this direction. Pea vines can be so easily grown and the yield is so good that several medium-sized mills



Thrashing in the old way

could be kept busy grinding the leaves, stems, and peas (if desired) into meal. A small percentage of crushed oats and corn could be mixed with it, plus a bit of cotton seed meal.

For stock this would make a feed unsurpassed in milk, flesh, and fat-forming properties, and I am sure it would be at a cost below the average mixed feed. In fact, if the vines have many peas on them and the whole is ground up together, it is almost a complete balanced ration within itself.

Cow Pea Ensilage

For ensilage cow peas alone have not proven a success, not from the fact that they will not make good ensilage, but the vines form such a tangled mass that it is almost impossible to cut them; and without cutting they do not pack well, the air being allowed to come in, causing them to mould, turn slick, and rot. Where they are grown with corn or sorghum they can be handled much easier; cut and pack quite satisfactorily, and they make a superior quality of ensilage.

As Food for Man

As a food for man. it may be prepared in a sufficient number of ways to suit the most fastidious palate.

From the following table below we see that it compares most favorably, in points of nutrition, with the much-prized Boston bean.

	WATER	PROTEIN (Muscle Builders)	CARBOHYDRATES (Fat Formers)	CALORIES (Heat Units)
BOSTON BEAN	12.6	22.5	59.6	1.605
COW PEA	13.0	21.4	60.8	1.590

Cooking

We take pleasure in submitting below thirty-two recipes which have been carefully tested as to their value, and I am sure will be found helpful in the preparation of this delicious vegetable:

Boiled Peas with Bacon

Wash the desired quantity of peas to be cooked in cold water, put in iron pot or stew-pan, cover with cold water, drop in a piece of fat bacon, boil slowly until tender; season with pepper and salt (if the bacon is not sufficiently salty to supply the required amount); simmer slowly until ready to serve. A small piece of butter will add greatly to their flavor.

Baked Peas

Prepare the same as for boiling; when half done pour into the baking pan; season with butter, pepper, and to every pint of peas add one scant teaspoonful of salt and a pinch of sugar; sear the piece of bacon and half bury it in the middle of the dish; cook slowly until thoroughly done to a delicate brown; serve either hot or cold.

Creamed Peas (Delicious)

Soak one pint of peas in cold water over night or until the hulls rub off easily; free them from the skins by rubbing them between the hands; continue washing in cold water until all the skins are removed; put in vessel to cook (porcelain or granite stew-pan preferable) with just enough water to cover them; boil slowly until thoroughly done; pass through a colander; season with a scant teaspoonful of salt; a pinch of pepper; one-half a tea-cupful of pure cream; a heaping teaspoonful of brown sugar or two of syrup; a small piece of butter may be added if not rich enough; whip the same as for creamed potatoes; serve hot.

Griddle Cake No. 1

Mix together one cup of boiling milk, one-half cup of cream, one cup of pea meal which has been previously soaked in cold water for one-half hour, and boil until thoroughly done; one tablespoonful of butter, the same amount of sugar, one-half teaspoonful of salt, one beaten egg, two teaspoonfuls of baking powder, and one cup of flour, or enough to make a stiff batter. Cook in griddle pans and serve while hot.

NOTE—It improves the lightness to whip vigorously before stirring in the baking powder. Sour milk and soda can be used the same as for other griddle cakes.

Alabama Baked (Delicious)

Hull the peas the same as recommended for creaming; put in small piece of fat pork; boil the peas until about half done; pour into baking dish: season to taste with butter, pepper, and salt; put tablespoonful of sugar to every quart of peas; put in oven; cook slowly until well done and brown; serve hot or cold.

Hopping John

Take one quart of peas and a scant pint of rice; boil the two separately until both are nearly done; turn the two together and season with lump of butter the size of a walnut, a pinch of pepper and two teaspoonfuls of salt. (If bacon is desired, put one-half pound into peas when first put on to cook. The salt in this case should be omitted.) A beef bone can be used instead of bacon, if desired, and, to my mind, adds much to the flavor. (Double the salt in this case or proportion it to the size of the bone.)

Boiled Green Peas

Select those that are about two-thirds grown, do not shell until ready to cook; wash in cold water and drain them; cover with boiling water and add one heaping teaspoonful of brown sugar to every quart of peas; salt to the taste.

When tender pour into a colander and drain; put them into a vegetable dish, and quite in the center of the peas put a lump of butter the size of a walnut and four tablespoonfuls of thick cream; Garnish with mint and parsley; serve hot.

Caution—Do not gather or shell this delicious vegetable long before it is dressed, or much of the delicate flavor will be lost.

Plain Pea Pudding

Soak one-half pint of split peas over night; put in an earthen dish; cover with hot water; add one heaping teaspoonful of butter, one-half teaspoonful of salt; cook thoroughly done and brown; garnish with parsley and serve.

Griddle Cakes No. 2

Boil the desired quantity of half-ripe peas until tender; mash to a pulp and pass through a strainer; to every cupful of strained peas add one of boiling milk, one-half teaspoonful of salt, one heaping tablespoonful of sugar, and when sufficiently cool, one egg well beaten; then stir in one cupful of flour which has had two tablespoonfuls of baking powder mixed into it by passing several times through a sieve. If the batter is too thick, add a little milk; if too thin, a little flour. Bake on a hot griddle and serve hot with syrup.

A Dish for Dyspeptics

Peas are deliciously prepared without grease of any kind as follows: hull the same as recommended for creaming; choose the

large white crowders; boil slowly in soft water in a covered vessel for several hours, or until the peas begin to fall to pieces, and the water (which should barely cover the peas when done, and not stand above them) is viscid and jelly-like. Add a little salt and nothing else, unless at the proper time you have chosen to put in a few sweet or Irish potatoes to eat with them. Many stomachs can retain and digest them in this way when they could not do so in any other.

Pea Soup with Celery

One quarter-pound each of onions, carrots, or parsnips; two ounces of celery; three-quarter pound of split peas; a little mint shredded fine; one teaspoonful of coarse brown sugar; salt and pepper to taste; four quarts of water or liquor in which a joint of meat has been boiled. Fry the vegetables for ten minutes in a little butter or drippings, previously cutting them up in small pieces; pour the water on them, and when boiling add the peas. Let them simmer until thoroughly done; add the sugar, seasoning, and mint; boil for a quarter of an hour, and serve.

Note "A."—Tastes differ so widely as to pepper and salt that it has been thought wise not to specify the amounts to be used in these recipes, except in a few instances.

Peas in the Pod

Top and tail with a sharp knife; cut in short pieces and cook tender; add a little salt while cooking; drain; butter freely and season with pepper and salt to taste. At this point a half teacupful of sweet cream to every quart of peas will greatly improve the flavor. Let simmer twenty minutes, and serve.

Peas in the Pod With Pork

Prepare the same as for the above; parboil in water made slightly salty for fifteen minutes; drain off the water; add a piece of fat salt pork two or three inches square; cook slowly until soft; take out the pork, and season with pepper, and serve.

Boston Baked Peas

Take a quart of large white peas; put in a stew-pan and cover with lukewarm water; place on the back of the range early in the morning; at noon, if the heat has been sufficient, they will be slightly soft to the pressure; now have ready an earthen bean pot, which comes for the purpose; put a pound of uncooked salt pork in the bottom of the jar; add pepper only, as it will receive salt enough from the pork; add one tablespoonful of New Orleans molasses to give a fine color; fill with water and set in a moderate oven, and bake slowly for six hours, occasionally adding hot water if necessary to keep moist.

Croquettes

Season cold mashed peas with pepper, salt, and nutmeg; beat to a cream with a tablespoonful of melted butter to every cupful of peas; add two or three well-beaten eggs and some minced parsley; roll into small balls and dip in beaten egg; roll in bread crumbs or cracker dust; fry to a rich brown in hot fat; drain, and serve while hot.

Green Pea Soup

Put two quarts of green peas with four quarts of water; boil for two hours, renewing waste by adding boiling water when needed; strain from liquor; return this to the pot; rub the peas through a sieve; chop an onion fine and a small sprig of mint and parsley; let boil for ten or fifteen minutes; stir a teaspoonful of flour into two tablespoonfuls of melted butter; mix well and stir carefully into the boiling soup; salt and pepper to taste; serve with well-buttered sippets of toasted bread.

Plain Pea Soup

Take one quart of hulled peas; boil until perfectly soft, allowing four quarts of water to one of peas; mash peas; add flour and butter rubbed together; also salt and pepper to taste; cut cold bread into small pieces; toast and drop into soup, with a bit of minced parsley.

Pea Soup No. 2

Put in a sauce-pan two ounces of bacon chopped fine, six onions peeled and chopped; salt and pepper to taste; add four quarts of hot water; boil twenty minutes; meantime rub through a sieve a quart of peas that have been previously boiled; add them to the first ingredients; boil one hour longer, and serve hot.

Pea Bouillon

Take six pounds of round of beef, three small carrots, three turnips, nine small onions, one large onion stuck with four cloves, a bunch of sweet herbs, two pints of peas (one shelled, the other in pod), one small head of cabbage, three large tomatoes, four quarts of water, pepper, salt, flournoodles, rice, or sago; put beef into the water whole, and heat slowly to a boil; skim; dip out a pint of the liquor left with the beef and put by for the cooking of the vegetables; add to the liquor left with the beef one sliced carrot, one turnip also sliced, the large onion and the herbs; stew slowly four hours; take out the beef and keep hot over boiling water; strain the soup, pulping the vegetables; cool, skim, and return to the fire, and when it heats, add noodles, boiled rice, or soaked German sago; simmer five minutes; pour into hot soup tureen, and serve.

*Pea Meal Soup

An almost endless variety of delicious soups can be easily and quickly made by thickening any soup stock with pea meal (brown-ed or unbrowned), permitting the same to cook slowly until the meal is done.

Fritters

One cup of pea meal previously soaked and simmered until done, one pint of milk, one half teaspoonful of salt, three eggs, one teaspoonful of sugar, two tablespoonfuls of butter; to the cold peas add the yolks of eggs, sugar, butter, and salt, also the whites of the eggs which have been previously whipped to a froth; add a pinch of pepper; fry in teaspoonfuls, in plenty of lard made hot for the purpose to a rich brown; serve with cream or lemon sauce. If inclined to fall to pieces, add a little flour to the batter.

Succotash

Take one pint of large white peas after they have been hulled, and cook tender; cut off the grains from three ears of corn; add one large tablespoonful of floured butter, two of thick cream; pepper and salt to taste; add one cup of milk; boil corn and peas until both are thoroughly done; add the milk; when this boils add the butter, pepper and salt; simmer ten minutes and serve.

Pea Salad

Take a scant quart of large white peas after they have been hulled and thoroughly cooked; put into a salad dish and season as follows: To two tablespoonfuls of best salad oil add one-half teaspoonful of sugar, same of pepper, made mustard and salt, and about the same of Royal celery salt; rub to smooth paste and whip in, teaspoonful at a time, five teaspoonfuls of best vinegar; when thoroughly mixed, pour upon salad and serve.

Salad No 2

Prepare peas the same as for the above; to one quart add two-thirds of a cup of sour cream, two well-beaten eggs; season to taste with sugar, a pinch of salt and mustard; a couple of stalks of celery should be chopped and added to it, or a tablespoonful of celery seed. This is very fine and most excellent for picnics.

Roast Pork with Peas

Choose a leg of fine young pork; cut a gash in the knuckle with a sharp knife and fill the space with sage, pepper, salt and an onion chopped; when half done score the skin in slashes, but do not cut deeper than the outer rind; let cook until nearly done; pour off

*NOTE—Pea meal can be made by grinding the peas in a new or well cleaned coffee mill. For brown pea meal the peas are simply roasted before grinding.

the excess of fat; add one quart of white peas that have been previously hulled, and cook slowly until all is quite done and brown; serve with apple sauce.

Pea Coffee

Brown some peas in the oven the same as for green coffee; to a given quantity (the strength desired determining this) add one-third pure coffee; boil and clarify the same as for pure coffee. Some like it just as well if the pure coffee is left out altogether.

French Peas

Soak, hall, and parboil one quart of shelled peas until tender; drain; add boiling water enough to keep from burning, two tablespoonfuls of butter, one whole onion, one-half handful of parsley tied; salt and pepper to taste; cook slowly for an hour; when ready to serve, take out the onion and parsley; add one tablespoonful of butter and a teacupful of thick cream into which a tablespoonful of flour has been stirred; add two teaspoonfuls of sugar; boil until thick, and serve hot.

Granada Stew

Boil a four-pound soup bone until all the meat drops from the bones; free from the liquor all the bones; salt and pepper to taste; add two tablespoonfuls of minced parsley, one pint of white potatoes, one pint of sweet potatoes, three stalks of celery chopped fine, and one pint of peas; mince the meat and cook all together until the vegetables are thoroughly tender; serve hot.

Pea Chowder

Take one pint of raw sweet corn, one pint of green peas; cut each row of kernels and scrape the raw corn from the cob; slice and add a pint of white potatoes to the water in which the scraped cobs have been previously boiled; cook until the potatoes are nearly done; add the corn and the peas which have been previously cooked until quite tender (do not add the water in which the peas were cooked); add one-half cup of butter, one-half pint of milk, and one-half pint of cream into which two tablespoonfuls of flour has been mixed; add corn and milk; salt and pepper to taste; return to fire and boil five minutes; remove from the fire; mince, and add the whites of too hard-boiled eggs, also the yolks after rubbing through a strainer; serve hot with buttered croutons.

Chow Chow of Peas

Take one quart of tender peas in the pod, one quart of shelled green peas, one quart of green tomatoes chopped, one quart of chopped onions, one pint of chopped peppers (half green and half ripe), half a cup of white mustard seed, half a cup of salt, and four stalks of celery chopped fine; add sugar, and curry powder to taste.

The peas should be put into cold water and brought to a boil; drop in a lump of soda the size of a pea; boil until about one-third cooked; drain off water thoroughly; wash in cold water; drain and chop before adding the other ingredients; cover with cold vinegar.

Chartreuse of Peas

Line a plain mould or tin basin (the desired size) with thin slices of raw bacon; have prepared some half-boiled snap peas, carrots and turnips, cut the latter into small slices and distribute them around the edges and the bottom of the pan about an inch thick; fill up the middle with some chopped veal, or what is still better, half and half of chopped veal and fresh pork thoroughly mixed together after seasoning to taste with salt, pepper, and a dash of sage; put a plate over the top of the mould; tie a cloth over that, and put into a steamer, and steam for an hour and a half, turn out on a platter, and serve with cream of white sauce.

Baked Pea Soup

Take cold baked peas; add twice the quantity of cold water, and let them simmer until soft; when done add half as much stewed tomatoes; rub all through a puree strainer; add more water until the right consistency is obtained; season to taste with salt, pepper, a little vinegar and mustard.

Roasted Peas

Take peas when the pods have just begun to turn yellow; put in moderate oven until thoroughly roasted; serve the same as for roasted peanuts.

Diseases

Neocosmospora Vasinfecta; var. *tracheiphila* (Pea Wilt)

This is without doubt the worst fungus enemy of the pea in this section. It is considered the same disease as the cotton wilt, and affects the cow pea similarly to that of cotton. The stem begins to turn black, the leaves droop as if suffering for water; finally the whole plant withers away and dies. In large acreages of peas often an acre or more will be destroyed by the wilt.

Remedy

Intelligent breeding and selection of resistant varieties have proven the most sensible and satisfactory method of combating this disease. The iron pea sent out by the United States Department of Agriculture a few years ago, is one of the best examples of what may be accomplished by scientific breeding, as this pea may be planted in the worst wilt-infested land, and scarcely a single vine is attacked and overcome by the wilt.

Selection

This method may be successfully carried on by any farmer who is a good observer: He will see that, no difference how badly

his peas wilt, there will be one or a few stalks that resist the wilt with impunity, they grow and seem to thrive. These are the ones from which to save seed. Second, save only large, plump, well-grown peas for seed, as small poorly matured ones will bring plants low in vitality, which will invariably succumb to the attacks of wilt. Third, the land should be well prepared, properly fertilized, and vigorously cultivated so that they will grow off fast and not be so susceptible to disease.

***Heterodera radiculicola* (Root knot)**

This is almost as destructive as the wilt in infested land, although it has not done much damage in this county. The precautions and remedies are essentially identical as for the wilt; so, therefore, it is not necessary to repeat them.

***Cercospora cruenta* (Smoky Spot)**

This is a spot disease of the foliage, appearing mainly on the underside of the leaf. On poorly prepared lands and plants low in vitality it completely defoliates them.

Remedy

Prepare the land well; select good seed; fertilize properly and cultivate fast to keep them growing, and you will suffer but little if any loss from this trouble.

There are two or three other leaf-spot diseases that affect the pea, but they are of minor importance and therefore do not deserve to be mentioned here. They yield readily to the same treatment as recommended for the "smoky spot" disease.

While collecting in Pensacola, Fla., this summer I discovered one patch of cow peas badly infested with a true rust *Uromyces appendiculatus*. Both the leaf and leaf-stems were badly attacked, and the plants were completely defoliated. As I observed it there, it is likely to become a serious trouble wherever the cow pea is grown. I have had no reports of this rust appearing in our county, or even our state; but it is a disease worth watching, and at its first appearance, it should be stamped out by pulling up and burning all affected plants. Seed for planting should not be saved from this field.

***Microsphaera diffusa* (Powdery mildew)**

This disease is very common, and is often serious in poorly prepared lands. Both leaves, stems, and the entire plant is attacked, resulting in complete defoliation and loss of the hay crop.

Remedy

The same treatment as recommended for "smoky spot" will overcome this trouble.

Insect Enemies

There are but few insect enemies of the cow pea in Macon County, one of the worst being *Bruchus* (Pea Weevil), which is so

destructive to stored peas. The best remedy is to put the peas in a tight bin or box and fumigate with bisulphide of carbon (C S 2). For a bin holding twenty-five or thirty bushels, pour one teacupful of the bisulphide into a soup-plate or saucer; set on top of the peas about the middle of the bin, and cover up the bin with a tight-fitting lid; leave for several days without opening.

Another very effective method is to spread a layer of peas, six or eight inches thick, in the bin or box; pour over them a little bisulphide, then another layer of peas, and so on until the bin is full or until all the peas have been used; cover tightly and leave for several days without opening.

CAUTION.—This liquid is very inflammable; hence no smoking must be allowed, or lamps, candles, or fire of any kind be permitted when handling it lest a frightful and disastrous explosion may occur. It is also vile-smelling and suffocating; so, therefore, as little as possible should be inhaled.

Heliothis Armigera (Corn-ear Worm, Boll Worm, etc.)

This is the well-known worm that does so much damage to cotton at times. While it is common all over the South, it has done but little damage in this county. This worm preys upon corn, cotton bolls, tomatoes, squashes, potatoes, beans, and peas.

Rotation of crops has proven the most effectual, up to date; also good preparation of the land, proper fertilization and rapid cultivation to stimulate the crop to rapid growth and early maturity.

Let us hope that every farmer will set about at once to make Macon the banner county for the growing of cow peas, because plenty of cow peas means more and better stock; more and better stock means more milk, butter, cheese, and beef, and greater fertility of the soil; the increased fertility of the soil; means larger and better crops on less acreage, and therefore less labor; larger and better crops means an increased amount of money and a happier and more contented class of people.

Director Department Research, Consulting Chemist
and Experiment Station.

